■ DEALS OF THE YEAR • WHY DETROIT'S CARS ARE GETTI

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FORTUNE

SPECIAL REPORT: THE ECONOMY OF THE 1990s

IT'S LESS THAN THREE YEARS AWAY, AND WE'RE ALMOST CERTAIN THAT:

- The U.S. Will Create 13 Million New Jobs
- Labor Shortages Will Be a Big Problem
- Middle Management Will Wither Away
- Manufacturing Will Flourish
- Social Security Will Run a Huge Surplus
- Consumer Electronics Will Be the Hottest Industry
- The World's Financial Markets Will Merge
- The Middle Class Will Prosper

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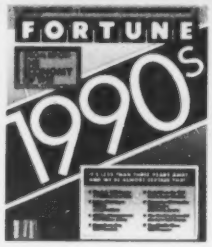

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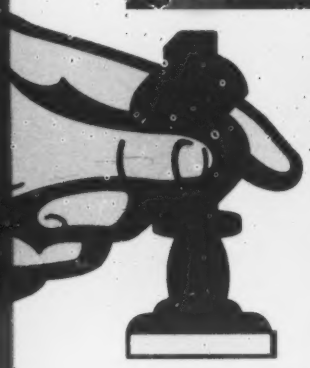


DEALS OF THE YEAR

Undeterred by Wall Street's insider trading scandal, U.S. dealmakers set records in non-oil mergers, leveraged buyouts, and securities offerings in 1986. Tax law changes prompted a year-end spree. The stars: retailers and media companies.

■ *by Daniel P. Wiener*

DUST OFF the record books. FORTUNE's tally of the 50 biggest U.S. deals completed in 1986 includes new highs in virtually every category. Leveraged buyouts reached unprecedented size. Investors bought up two gigantic initial public offerings of common stock as well as several massive junk bond issues linked to mergers and corporate restructurings. Nonetheless, the total value of corporate combinations, securities issues, and buybacks on FORTUNE's list—$92.6 billion—is just under the 1985 total.

As in 1985, media companies were prime takeover targets, while retailers got hotter and hotter. Consolidations soared in the airline industry. The main exceptions were oil companies, which all but sat back after two years of nonstop feasting.

As tax reform took shape, buyers and sellers went looking for matches before year's end. More than a third of the largest deals of 1986 were completed in the year's last three months, a fifth in December alone. For the first time the tally, compiled with the aid of IDD Information Services, excludes the routine but mammoth debt offerings by the Federal National Mortgage Association.

Topping the list was the biggest non-oil amalgamation ever, General Electric's $6.4-billion acquisition of RCA. In snaring the largest U.S. consumer electronics company, GE also picked up NBC, the biggest television network. And while CBS was fending off attackers, the ABC network fell to the lean and hungry managers of Capital Cities Communications for $3.5 billion (deal No. 6).

Three transactions in different industries topped the previous record for a leveraged buyout. The largest was the $6.2-billion privatization of food and consumer product behemoth Beatrice Cos. (No. 2), financed entirely with debt. The deal was originally thought by many on Wall Street to be one of the shakiest ever executed. But Beatrice, confounding the doubters, quickly slashed debt through the sale of operations worth $3.4 billion, including its International Playtex division (tied for No. 25) and soft drink bottling operations (tied for No. 39). Safeway Stores, the largest U.S. supermarket chain, went private in a $4.3-billion deal (No. 4), and savvy managers at Macy's took their mega-retailer private in a $3.6-billion buyout (No. 5).

JUNK BOND OFFERINGS supplied the grease for many of the year's corporate tuneups, and junk bond juggernaut Drexel Burnham Lambert grew mightier than ever. The firm arranged three debt offerings larger than $1 billion, including a record buster for BCI Holdings (No. 14). Even when its facade of invincibility crumbled amid disclosures of insider trading by arbitrager Ivan Boesky, whose ties to Drexel were many, the firm went right on cranking out high-yield bonds, including $1 billion to help finance Safeway's leveraged buyout (tied for No. 39).

With the stock market surging, 1986 was a propitious time for companies to go public. Henley Group's $1.2-billion stock offering (No. 29), the largest U.S. initial public offering ever, barely edged out one by Coca-Cola Enterprises (No. 30). Investors also went hunting for bargains down under, buying $855 million worth of shares in the First Australia Prime Income Fund's first offering (No.47). That shattered a record that had stood since 1983, when Merrill Lynch launched its ill-starred Sci-Tech mutual fund.

Union Carbide was involved in several huge deals. To snuff out GAF's attempted takeover, Carbide spent $3.3 billion buying in 55% of its shares (No. 8) and then sold off its battery division to Ralston Purina (No. 19). In December, Carbide completed the biggest-ever tender offer for debt (No. 11), paying approximately 9% above the market price to retire restrictive junk bonds it had issued only 11 months earlier.

Wall Street dealmakers stuffed their pockets with record advisory fees totaling more than $615 million for the mergers and acquisitions on FORTUNE's list, not counting commissions for arranging the necessary financing. Goldman Sachs was champ for the year, taking in more than $109 million.

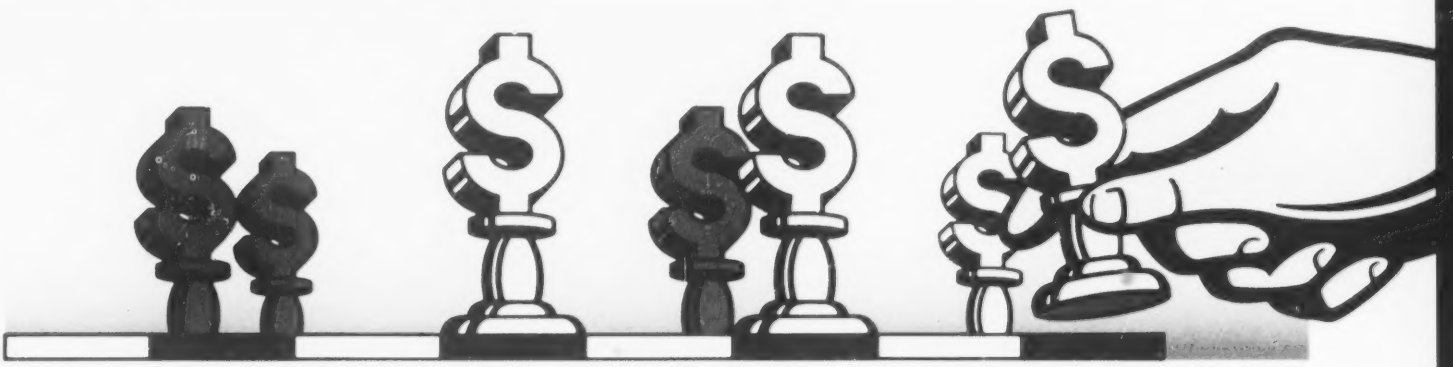
Plenty of big deals are due to close in early 1987. Unilever is readying a friendly $3 billion merger with Chesebrough-Pond's. Despite the Boesky scandal and talk that the government may curb mergers, dealmakers hope to stay busy. "I don't think we've necessarily hit the peak," says George Hornig, a vice president in First Boston's mergers and acquisitions group.

Where will the next big deals be concentrated? Utilities may exercise some muscle. "Utilities without nuclear energy problems are big cash generators and are diversifying into financial services," says Hornig. "Small regional companies are also ripe for consolidation." Retailers will be coveted, and banking combinations should also heat up. With more states allowing mergers between banks in neighboring jurisdictions, the search for partners is accelerating.

REPORTER ASSOCIATES *Katharena Leanne Zanders and David Kirkpatrick*

ILLUSTRATIONS BY JACK TOM

BIGGEST DEALS OF 1986



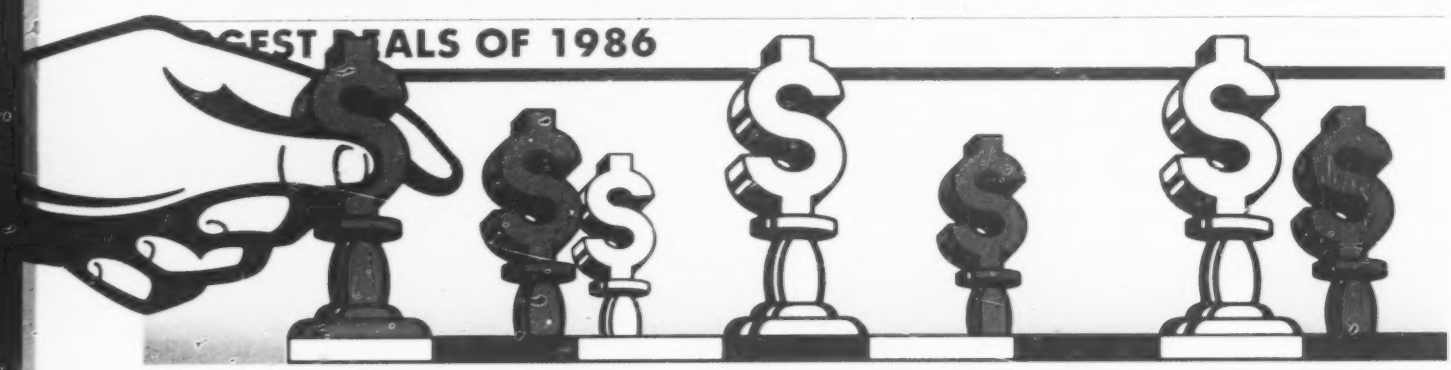
RANK		VALUE (000) % OF BOOK VALUE	TRANSACTION	FINANCIAL INTERMEDIARIES (Client)	FEE (000)	FEE As % of deal
1	**GENERAL ELECTRIC** (diversified manufacturing) **acquires RCA** (consumer electronics, entertainment)	**$6,406,000** 242%	**Acquisition for cash, completed June 9**	GOLDMAN SACHS (General Electric)	**$15,000**[a]	23%
				LAZARD FRÈRES (RCA)	**$12,000**	19%
2	**BCI HOLDINGS**[1] **acquires BEATRICE COS.** (food, consumer products)	**$6,216,200** 210%	**Leveraged buyout for cash and preferred stock, April 16**	KOHLBERG KRAVIS ROBERTS (BCI Holdings)	**$40,000**	64%
				LAZARD FRÈRES	**$8,000**	13%
				SALOMON BROTHERS (Beatrice)	**$8,000**	13%
3	**BURROUGHS** (computers, electronics) **merges with SPERRY** (computers, electronics) **to form UNISYS**	**$4,753,700**[2] 144%	**Purchase of 51% of Sperry common stock through cash tender offer, followed by purchase of remaining shares for cash and preferred stock, September 16**	LAZARD FRÈRES	**$7,500**	16%
				JAMES D. WOLFENSOHN (Burroughs)	**$5,000**	11%
				FIRST BOSTON (Sperry)	**$8,750**	18%
4	**SAFEWAY STORES HOLDINGS**[1] **acquires SAFEWAY STORES** (supermarkets)	**$4,284,311** 254%	**Leveraged buyout for cash, debentures, and common stock warrants, November 24**	KOHLBERG KRAVIS ROBERTS	**$45,000**	1.05%
				MORGAN STANLEY (Safeway Holdings)	**$10,000**	23%
				KOHLBERG KRAVIS ROBERTS	**$15,000**	.35%
				MERRILL LYNCH CAPITAL MARKETS (Safeway)	**$11,000**	.26%
5	**MACY MERGER**[1] **acquires R.H. MACY** (department stores)	**$3,564,992** 246%	**Leveraged buyout for cash, July 15**	GOLDMAN SACHS (Macy Merger)	**$30,250**	85%
				JAMES D. WOLFENSOHN (R. H. Macy)	**$5,500**	15%
6	**CAPITAL CITIES COMMUNICATIONS acquires ABC** (broadcasting)	**$3,509,000** 239%	**Acquisition for cash, June 6**	FIRST BOSTON (ABC)	**$7,500**	21%
7	**CAMPEAU** (real estate developer) **acquires ALLIED STORES**	**$3,505,716** 266%	**Acquisition for cash, December 31**	FIRST BOSTON (Campeau)	**$7,000**	20%
				GOLDMAN SACHS (Allied Stores)	**$12,000**	34%
8	**UNION CARBIDE** (chemicals) **repurchases 55% of its common stock**	**$3,332,853** 141%	**Tender offer to exchange cash, notes, and debentures for 38.8 million shares, to fend off hostile takeover bid by GAF, January 15**	MORGAN STANLEY	**$35,000**	1.05%
9	**CLEVELAND ELECTRIC** (public utility) **merges with TOLEDO EDISON** (public utility) **to form CENTERIOR ENERGY**	**$3,140,493**[4] 232%	**Merger through exchange of common stock, April 29**	MORGAN STANLEY (Cleveland Electric)	**$3,794**	.12%
				MERRILL LYNCH CAPITAL MARKETS (Toledo Edison)	**$2,625**	.08%

Mergers and acquisitions

Securities offerings and buybacks

[a] FORTUNE estimate.
[1] Group led by Kohlberg Kravis Roberts.
[2] Valued as if Burroughs were the buyer.
[3] Group led by management.
[4] Valued as if Cleveland Electric were the buyer.

GEST ALS OF 1986

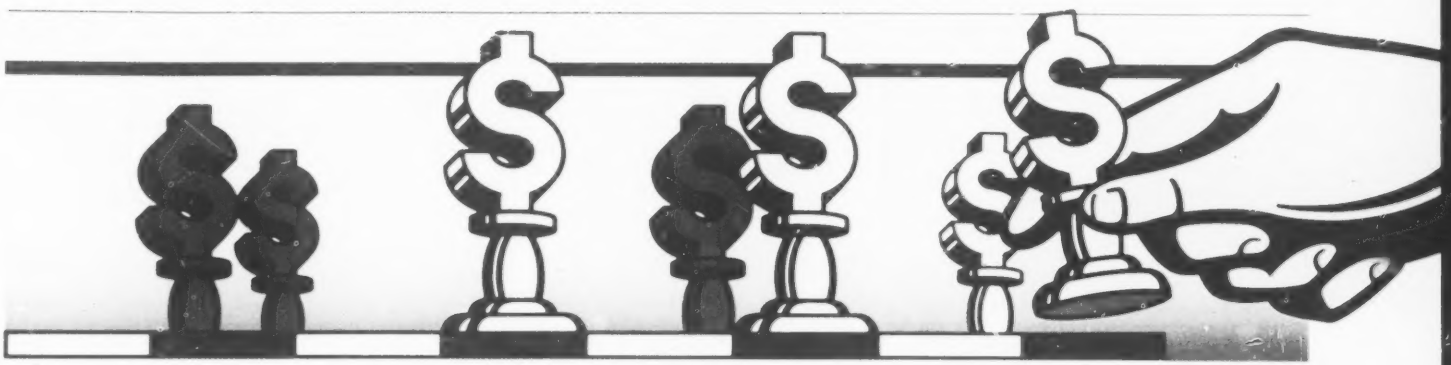


RANK	VALUE (000) % OF BOOK VALUE	TRANSACTION	FINANCIAL INTERMEDIARIES (Client)	FEE (000)	FEE As % of deal
10 **USX** (steel, oil and gas) **acquires TEXAS OIL & GAS**	**$2,996,646** 168%	**Acquisition for common stock, February 11**	GOLDMAN SACHS (USX)	**$7,000**	.23%
			FIRST BOSTON (Texas Oil & Gas)	**$10,000**	.33%
11 **UNION CARBIDE** (chemicals) **repurchases debt issued to finance stock buyback**[5]	**$2,736,000**	**Cash tender offer for 13¼% notes due 1993, 14¼% notes due 1996, and 15% debentures due 2006 to reduce interest costs and eliminate financial restrictions, December 5**	FIRST BOSTON	**$1,725**	.06%
12 **OCCIDENTAL PETROLEUM acquires MIDCON** (gas pipelines)	**$2,576,188** 228%	**Purchase of 53% of MidCon common stock through cash tender offer, followed by exchange of Occidental shares for remaining stock, April 1**	FIRST BOSTON (Occidental)	**$7,000**	.27%
			MERRILL LYNCH CAPITAL MARKETS (MidCon)	**$9,500**	.37%
13 **MAY DEPARTMENT STORES acquires ASSOCIATED DRY GOODS** (department stores)	**$2,380,082** 231%	**Acquisition for common stock, October 6**	MORGAN STANLEY (May)	**$6,875**	.29%
			GOLDMAN SACHS SHEARSON LEHMAN BROTHERS (Associated)	**$6,750** **$6,750**	.28% .28%
14 **BCI HOLDINGS**[6] **sells bonds**	**$1,750,000**	**Offering of $800 million of 12½% debentures due 1998 and $950 million of 12¾% debentures due 2001, to help finance BCI's acquisition of Beatrice Cos.,**[7] **April 10**	DREXEL BURNHAM LAMBERT	**$62,188**	3.55%
15 **Consortium of communications companies**[8] **acquires GROUP W CABLE from WESTINGHOUSE ELECTRIC**	**$1,730,000** N.A.	**Acquisition for cash, June 19**	FIRST BOSTON SHEARSON LEHMAN BROTHERS (Westinghouse)	**$4,875** **$4,875**	.28% .28%
16 **AANCOR HOLDINGS**[9] **acquires NATIONAL GYPSUM** (building materials)	**$1,569,997** 250%	**Leveraged buyout for cash and debentures, April 29**	GOLDMAN SACHS SALOMON BROTHERS DILLON READ (Aancor Holdings)	**$10,000** **$1,250** **$1,250**	.64% .08% .08%
17 **OCCIDENTAL PETROLEUM sells notes**	**$1,487,853**	**Offering of $594 million of 10% notes due 1991, $298 million of 10½% notes due 1993, and $596 million of 10⅞% notes due 1996 to finance MidCon acquisition,**[10] **March 21**	DREXEL BURNHAM LAMBERT* DONALDSON LUFKIN & JENRETTE KIDDER PEABODY SHEARSON LEHMAN BROTHERS DEAN WITTER REYNOLDS	**$23,250**	1.56%
18 **FOX TELEVISION STATIONS**[11] **acquires six television stations from METROMEDIA BROADCASTING**	**$1,472,000** N.A.	**Acquisition for cash and preferred stock, March 6**	DREXEL BURNHAM LAMBERT ALLEN & CO. (Fox)	**$22,500** **$11,500**	1.53% .78%
			DREXEL BURNHAM LAMBERT (Metromedia)	**$33,150**	2.26%
19 **RALSTON PURINA** (animal feeds) **acquires battery products division from UNION CARBIDE** (chemicals)	**$1,415,000** 204%	**Acquisition for cash, June 30**	MORGAN STANLEY (Union Carbide)	**$4,900**	.35%

Mergers and acquisitions

Securities offerings and buybacks

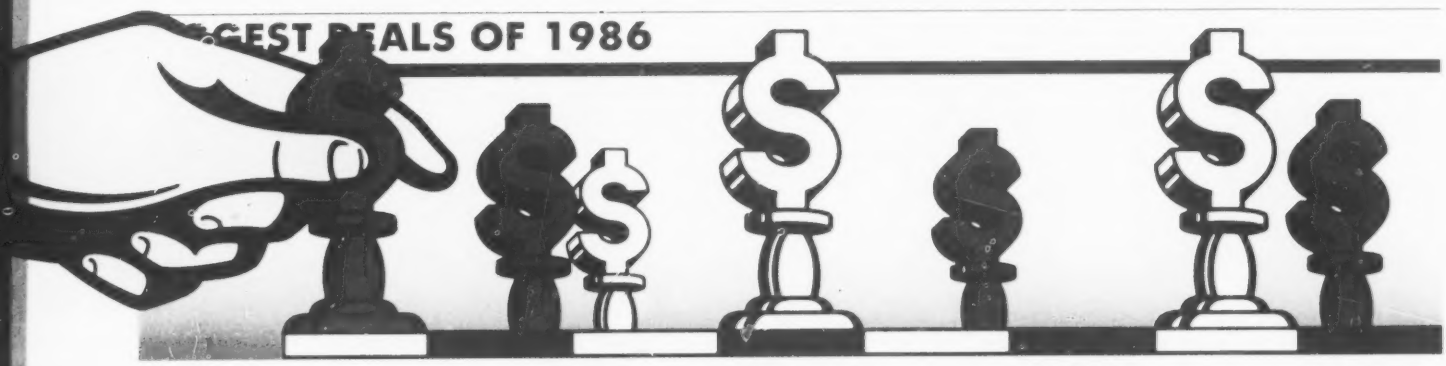
N.A. Not available.
*Lead manager.
[5]See deal No. 8.
[6]Group led by Kohlberg Kravis Roberts.
[7]See deal No. 2.
[8]American Television & Communications, Telecommunications Inc., Comcast, Daniels & Associates, and Century Communications.
[9]Private investors and National Gypsum managers.
[10]See deal No. 12.
[11]Jointly controlled by the News Corp. Ltd. and Rupert Murdoch.



RANK	VALUE (000) % OF BOOK VALUE	TRANSACTION	FINANCIAL INTERMEDIARIES (Client)	FEE (000)	FEE As % of deal
20 **ANAC HOLDING**[12] **acquires D.S. REVCO** (drugstores)	**$1,370,904** 355%	**Leveraged buyout for cash, December 29**	SALOMON BROTHERS GOLENBERG (Anac Holding) GOLDMAN SACHS (Revco)	**$6,000** **$6,000** **$4,000**	.44% .44% .29%
21 **WICKES COS.** (diversified retailer) **sells bonds**	**$1,356,374**	**Offering of 11⅞% debentures due 2001 to finance future acquisitions, June 5**	DREXEL BURNHAM LAMBERT	**$41,400**	3.05%
22 **RELIANCE ACQUISITION**[13] **acquires RELIANCE ELECTRIC** (motors) **from EXXON**	**$1,350,000** N.A.	**Leveraged buyout for cash, December 30**	CITICORP CAPITAL INVESTORS PRUDENTIAL-BACHE SECURITIES (Reliance Acquisition)	**N.A.** **N.A.**	— —
23 **ICH CORP.** (insurance) **acquires insurance businesses from TENNECO**	**$1,344,000** N.A.	**Acquisition for cash, December 31**	KIDDER PEABODY STEPHENS (ICH) MORGAN STANLEY (Tenneco)	**$13,000*** **$3,000*** **$4,900***	.97% .22% .36%
24 **TURNER BROADCASTING SYSTEM acquires MGM/UA ENTERTAINMENT** (movie production)	**$1,329,475** 563%	**Acquisition for cash and preferred stock, March 25**	DREXEL BURNHAM LAMBERT (Turner) BEAR STEARNS DREXEL BURNHAM LAMBERT (MGM/UA)	**$11,700** **$10,000** **$7,500**	.88% .75% .56%
25 **PLAYTEX HOLDINGS**[14] **acquires INTERNATIONAL PLAYTEX from BCI HOLDINGS**[15]	**$1,250,000** N.A.	**Leveraged buyout of former Beatrice Cos. division for cash and preferred stock, December 12**	DREXEL BURNHAM LAMBERT (Playtex Holdings) GOLDMAN SACHS (BCI Holdings)	**N.A.** **N.A.**	— —
25 **CIE. GÉNÉRALE D'ELECTRICITÉ and others**[16] **acquire telecommunications businesses from ITT**	**$1,250,000** N.A.	**Acquisition for cash, December 30**	MORGAN STANLEY (CGE) LAZARD FRÈRES GOLDMAN SACHS (ITT)	**$4,700*** **N.A.** **N.A.**	.38% — —
27 **UNION PACIFIC** (railroad, natural resources) **acquires OVERNITE TRANSPORTATION** (trucking)	**$1,210,293** 502%	**Cash tender offer, October 20**	DILLON READ (Union Pacific) MORGAN STANLEY (Overnite)	**$5,120** **$4,560**	.42% .38%
28 **COCA-COLA acquires bottling companies and certain other assets of JTL CORP.**[17]	**$1,200,000** N.A.	**Acquisition for cash, September 29**	FIRST BOSTON (Coca-Cola) GOLDMAN SACHS (JTL)	**N.A.** **N.A.**	— —
29 **HENLEY GROUP**[18] **sells common stock**	**$1,190,000**	**Initial public offering of 56 million shares, May 20**	LAZARD FRÈRES* FIRST BOSTON MERRILL LYNCH CAPITAL MARKETS	**$56,000**	4.71%
30 **COCA-COLA ENTERPRISES** (group of bottling companies)[19] **sells common stock**	**$1,178,100**	**Initial public offering of 71.4 million shares, November 21**	ALLEN & CO.* FIRST BOSTON SALOMON BROTHERS SHEARSON LEHMAN BROTHERS	**$59,262**	5.03%

*FORTUNE estimate.
N.A. Not available.
*Lead manager.
[12]Group of private investors and Revco managers.
[13]Group led by Reliance managers and including Citicorp Capital Investors and Prudential-Bache Securities.
[14]Group of private investors and managers.
[15]Group led by Kohlberg Kravis Roberts. In a related deal BCI acquired a 20% interest in International Playtex.
[16]Joint venture in which Cie. Générale D'Electricité holds 55.6%, ITT holds 37%, Société Générale de Belgique holds 5.7%, and Crédit Lyonnais holds 1.7%.
[17]Privately owned bottling company.
[18]Company composed of 35 businesses spun off by Allied-Signal.
[19]Coca-Cola holds 49% interest.

GEST DEALS OF 1986



RANK	VALUE (000) % OF BOOK VALUE	TRANSACTION	FINANCIAL INTERMEDIARIES (Client)	FEE (000)	FEE As % of deal
31 **LOCKHEED** (aircraft) **acquires SANDERS ASSOCIATES** (defense electronics)	**$1,162,659** 327%	**Cash tender offer, July 30**	FIRST BOSTON (Lockheed)	**$4,000**	.34%
			KIDDER PEABODY (Sanders)	**$500**	.04%
32 **ECKERD HOLDINGS**[20] **acquires JACK ECKERD** (drugstores)	**$1,156,320** 216%	**Leveraged buyout for cash and debentures, April 30**	MERRILL LYNCH CAPITAL MARKETS GOLDMAN SACHS (Fees shared by parties in deal)	**$14,500** **$4,075**	1.25% .35%
33 **FRUEHAUF HOLDINGS**[21] **acquires FRUEHAUF** (truck trailers)	**$1,127,835** 155%	**Leveraged buyout for cash and common stock, December 23**	MERRILL LYNCH CAPITAL MARKETS KIDDER PEABODY SALOMON BROTHERS (Fruehauf Holdings)	**$21,695** **$5,651** **$1,250**	1.92% .50% .11%
34 **WICKES COS.** (diversified retailer) **acquires COLLINS & AIKMAN** (textiles)	**$1,116,945** 317%	**Cash tender offer, December 9**	DREXEL BURNHAM LAMBERT (Wickes)	**$6,250**	.56%
			GOLDMAN SACHS (Collins)	**$5,800**	.52%
35 **INTERNATIONAL PAPER acquires HAMMERMILL PAPER**	**$1,084,915** 193%	**Cash tender offer, November 10**	LAZARD FRÈRES (International Paper)	**$4,000**	.37%
			MORGAN STANLEY FIRST BOSTON (Hammermill)	**$4,600** **$3,840**	.42% .35%
36 **WELLS FARGO** (bank holding company) **acquires CROCKER NATIONAL BANK from MIDLAND BANK**	**$1,072,000** 91%	**Acquisition for cash, May 30**	MORGAN STANLEY (Wells Fargo)	**$4,000***	.37%
			GOLDMAN SACHS (Midland)	**N.A.**	—
37 **L'AIR LIQUIDE** (industrial gases) **acquires BIG THREE INDUSTRIES** (industrial gases)	**$1,043,863** 210%	**Cash tender offer, October 20**	LAZARD FRERES (L'Air Liquide)	**$5,219**	.50%
			SALOMON BROTHERS (Big Three)	**$1,000**	.10%
38 **HONEYWELL** (computers, aerospace) **acquires SPERRY AEROSPACE** (avionics, electronics) **from UNISYS** (computers)	**$1,025,000** N.A.	**Acquisition for cash, December 30**	DILLON READ (Honeywell)	**N.A.**	—
			SHEARSON LEHMAN BROTHERS (Unisys)	**N.A.**	—
39 **COCA-COLA acquires bottling companies from BCI HOLDINGS**[22]	**$1,000,000** N.A.	**Acquisition of former Beatrice Cos. operations for cash, September 23**	NONE		
39 **SAFEWAY STORES HOLDINGS**[22] **sells notes and debentures**	**$1,000,000**	**Offering of $750 million of 11¾% notes due 1996 and $250 million of 12% debentures due 1998 to finance the acquisition of Safeway Stores, November 18**[23]	DREXEL BURNHAM LAMBERT	**$40,000**	4.00%
41 **OCCIDENTAL PETROLEUM sells bonds**	**$989,950**	**Offering of 11¾% debentures due 2011 to finance MidCon acquisition, March 21**[24]	DREXEL BURNHAM LAMBERT* FIRST BOSTON SALOMON BROTHERS	**$18,750**	1.89%

Mergers and acquisitions

Securities offerings and buybacks

*FORTUNE estimate. N.A. Not available. *Lead manager.
[20]Group led by Merrill Lynch and managers. [21]Group led by Merrill Lynch. [22]Group led by Kuhlberg Kravis Roberts.
[23]See deal No. 4. [24]See deal No. 12.

BIGGEST DEALS OF 1986

RANK	VALUE (000) % OF BOOK VALUE	TRANSACTION	FINANCIAL INTERMEDIARIES (Client)	FEE (000)	FEE As % of deal
42 **TEXTRON** (multi-industry) **acquires EX-CELL-O** (machine tools)	**$953,250** 188%	**Cash tender offer, September 16**	BEAR STEARNS (Textron)	**$4,500**	.47%
			GOLDMAN SACHS (Ex-Cell-O)	**$4,100**	.43%
43 **HANSON TRUST** (multi-industry) **acquires SCM** (typewriters, food processing)	**$926,000** 139%	**Acquisition for cash, March 31**[25]	ROTHSCHILD INC. (Hanson)	**$5,500**	.59%
			GOLDMAN SACHS (SCM)	**$7,500**	.81%
44 **COASTAL** (oil and gas) **sells notes and bonds**	**$900,000**	**Offering of $500 million of 11¼% notes due 1996 and $400 million of 11¾% debentures due 2006 to refinance debt, June 30**	DREXEL BURNHAM LAMBERT	**$23,000**	2.56%
44 **DELTA AIR LINES acquires WESTERN AIR LINES**	**$900,000** 1,753%	**Acquisition for cash and common stock, December 18**	GOLDMAN SACHS (Delta)	**$2,750**	.31%
			DILLON READ (Western)	**$4,050**	.45%
46 **NWA** (airlines) **acquires REPUBLIC AIRLINES**	**$884,000** 251%	**Acquisition for cash, August 12**	FIRST BOSTON (NWA)	**$1,750**	.20%
			DREXEL BURNHAM LAMBERT (Republic)	**$1,375**	.16%
47 **FIRST AUSTRALIA PRIME INCOME FUND**[26] **sells common stock**	**$855,000**	**Initial public offering of 85.5 million shares, April 17**	PRUDENTIAL-BACHE SECURITIES* BEAR STEARNS NIKKO SECURITIES	**$57,713**	6.75%
48 **PEPSICO** (soft drinks, snack foods) **acquires KENTUCKY FRIED CHICKEN** (fast food) **from RJR NABISCO** (cigarettes, food processing)	**$840,000** N.A.	**Acquisition for cash, October 1**	DILLON READ (RJR Nabisco)	**N.A.**	–
49 **SCHERING-PLOUGH** (drugs) **acquires KEY PHARMACEUTICALS**	**$836,518** 1,378%	**Acquisition for cash, June 26**	MERRILL LYNCH CAPITAL MARKETS (Schering-Plough)	**$2,400**	.29%
			MORGAN STANLEY (Key)	**$3,700**	.44%
50 **MAXXAM GROUP** (real estate) **acquires PACIFIC LUMBER**	**$832,607** 522%	**Purchase of 64.7% through cash tender offer, followed by acquisition of remaining shares for cash, February 26**	DREXEL BURNHAM LAMBERT (Maxxam)	**$4,300**	.52%
			SALOMON BROTHERS (Pacific Lumber)	**$4,414**	.53%

N.A. Not available.
*Lead manager.
[25]Hanson previously owned 32%.
[26]Closed-end investment company.

EXPLANATORY NOTES

Deals eligible for the list include:

1. U.S. public offerings of securities (except short-term securities) by domestic and foreign corporations issued under a single prospectus or offering circular.
2. Cash tender offers by domestic corporations or by foreign corporations tendering in the U.S., including those of companies buying in their own securities.
3. Mergers or acquisitions in which the buyer or seller is a U.S. company or part of one. To be eligible, offerings must be effective in 1986 and tender offers must have expired during the year. Mergers and acquisitions are eligible if legally closed during the year or, when not legally closed, if the prospective buyer has paid a portion of the purchase price in cash during the year.

The list excludes short-term financings, government securities, routine debt offerings by financial companies, repackagings of mortgage and other debt, and financings other than public offerings—such as bank borrowings and private placements.

VALUE OF DEAL

Debt assumed in an acquisition is not included in the price. Amounts for cash offerings are the total amounts raised; for tenders the total amount paid. All securities issued in acquisitions or mergers are valued at the market price on the date of closing. When two companies merge through an exchange of stock to form a new company, the company whose stockholders received the larger share of the new company is treated as the buyer, and only those shares issued to stockholders of the smaller company are valued.

PERCENT OF BOOK VALUE

Book value calculations indicate the price paid (or amount of equity capital raised) per share as a percentage of the shareholders' equity per share of the acquired company or issuer at the end of the last quarter preceding the transaction.

TRANSACTION

Dates under this heading are effective dates for offerings, expiration dates for tenders, and closing dates for acquisitions and mergers.

FINANCIAL INTERMEDIARIES

For underwritten public offerings, the co-managers are listed and the lead manager is indicated by an asterisk. In the case of acquisitions and mergers, the intermediaries are typically investment banking firms that assisted in the transaction.

FEE

The figures represent the amounts charged by the financial intermediaries assisting in the deals. In underwritings, part of the fee is paid to other members of the underwriting syndicate or to dealers other than the co-managers. In mergers and acquisitions, fees paid for financing services are excluded, when possible.

THE BEST AND WORST

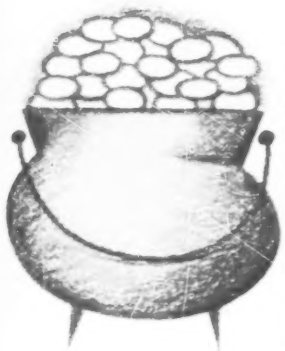
The blue chips of the Dow Jones industrials set a sizzling pace last year, but some small companies were the biggest winners. If Wall Street strategists are right, over-the-counter stocks could kick up a lot more dust in 1987. ■ *by Joshua Mendes*

THESE are dizzying times for investors, with the stock market's thundering advance in the opening days of the new year following close on 1986's record-breaking climb. Last year, as FORTUNE's lists of the best- and worst-performing stocks show, the rewards were handsomest for investors with a taste for fast-rising little companies.

This list is different from other such January exercises. The rankings, which bring together stocks traded on the New York Stock Exchange, the American Stock Exchange, and the over-the-counter market, are based on total return—price appreciation plus reinvested dividends. Interactive Data, a database subsidiary of Chase Manhattan Corp., compiled the lists, which exclude American depositary receipts of foreign companies, partnership units, and stocks that began the year selling for less than $5.

If market indicators were the sole guide to investing, the best plays would have been among the 30 big-name companies that make up the Dow Jones industrial average, which broke the 2000 barrier in early January. The Dow, paced by such hot performers as Merck and Owens-Illinois, was up 22.58% for the year, not counting dividends, and Standard & Poor's 500-stock index rose 14.62%. That dwarfed the 7.36% rise in the Nasdaq composite index of 4,500 over-the-counter stocks. Yet most of the top performers in FORTUNE's ranking were over-the-counter standouts.

The gold medal winner in 1986 was Viratek, a small pharmaceutical company in Costa Mesa, California, that may have found a treatment for AIDS. One dollar invested in the stock last January 1 was worth nearly $6 at the year's end. Viratek is expected to apply to the Food and Drug Administra-



NEW YORK STOCK EXCHANGE

AMERICAN STOCK EXCHANGE

OVER THE COUNTER

THE 100 BEST STOCKS

		STOCK PRICE 12/31		DIVIDENDS PER SHARE	TOTAL RETURN TO INVESTORS
		1985	1986		
1	**Viratek** (Costa Mesa, Calif.)	$10.625	$63.00	$0.00	493%
2	**Chambers Development** (Pittsburgh)	$10.50	$16.875	$10.44*	221%
3	**Control Resource Industries** (Michigan City, Ind.)	$6.125	$18.75	$0.00	206%
4	**Crown Crafts** (Calhoun, Ga.)	$8.25	$24.00	$0.00	191%
5	**Jefferson Smurfit** (Alton, Ill.)	$13.625	$38.50	$0.50	188%
6	**COMB** (Minneapolis)	$7.812	$22.25	$0.00	185%
7	**North American Holding** (Hartford)	$5.125	$7.25	$6.38*	183%
8	**Envirodyne** (Chicago)	$8.125	$22.125	$0.00	172%
9	**Old National Bancorp** (Spokane)	$15.568	$42.00	$0.20	171%
10	**Woodstream** (Lititz, Pa.)	$9.00	$23.875	$0.40	171%
11	**Seagate Technology** (Scotts Valley, Calif.)	$7.25	$19.125	$0.00	164%
12	**Olson Industries** (Sherman Oaks, Calif.)	$11.75	$29.50	$0.00	151%
13	**Reebok International** (Avon, Mass.)	$9.333	$23.375	$0.00	150%
14	**Hovnanian Enterprises** (Red Bank, N.J.)	$7.444	$18.50	$0.00	149%
15	**Owens-Corning Fiberglas** (Toledo)	$37.50	$13.75	$69.60*	148%
16	**First Capital Holdings** (Las Vegas)	$6.00	$14.875	$0.00	148%
17	**Nord Resources** (Dayton)	$8.583	$21.25	$0.00	148%
18	**Circuit City Stores** (Richmond)	$12.437	$30.625	$0.06	147%
19	**Genentech** (South San Francisco)	$34.875	$85.00	$0.00	144%
20	**Ashton-Tate** (Culver City, Calif.)	$18.375	$44.50	$0.00	142%
21	**Cherokee Group** (North Hollywood, Calif.)	$9.50	$23.00	$0.00	142%
22	**Maxtor** (San Jose, Calif.)	$7.187	$17.375	$0.00	142%
23	**HAL** (Honolulu)	$9.00	$21.75	$0.00	142%
24	**Convenient Food Mart** (Rosemont, Ill.)	$5.818	$14.00	$0.00	141%
25	**SPI Pharmaceuticals** (Covina, Calif.)	$11.75	$28.00	$0.06	139%

*Includes extraordinary onetime payout of cash, stock, or debt securities.

STOCKS OF 1986

tion this winter for approval of ribavirin, a drug that combats viruses, for use against AIDS. A green light, analysts say, could translate into annual sales of $1 billion or more. "Viratek has been one of the favorite small-investor stocks of the year," says Steven Kaye, portfolio manager of Fidelity Group's Select Biotechnology Fund. He gives Viratek a fifty-fifty chance of receiving approval by midyear.

Most of 1986's top performers are far from the world of high technology. The No. 2 stock, and best performer on the American exchange, was Chambers Development, a Pittsburgh garbage collection company. Coming in third was another over-the-counter company, Control Resource Industries of Michigan City, Indiana, which is cleaning up by removing asbestos from buildings. Top performer of the Big Board stocks—and 13th overall—was Reebok International, a New England–based maker of trendy athletic footwear. Reebok's estimated sales and earnings sprinted ahead by nearly 200% in 1986.

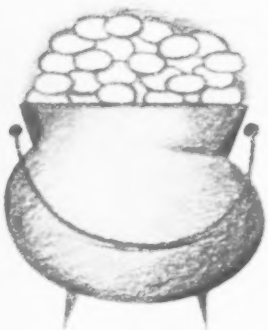
MANY OF 1986's 50 worst-performing stocks suffer from a common malady: the oil slump. Over one-fourth of these companies, including five banks, are based in the petroleum states of Texas, Oklahoma, and Alaska. But Bioassay Systems, which was tied for booby prize, had other problems. Sales of its diagnostic kits, which test for viruses, have gone nowhere. Advanced Tobacco Products, sharing the worst-performer title, bet heavily on a smoke-free cigarette named Favor. But so far, at least, smokers prefer smoke.

As for 1987, a growing number of investment strategists think the stock market rally will broaden and that the smart money will go into small growth stocks or mutual funds specializing in them. This group has never underperformed the market longer than four years, according to Dennis Sherva, director of research at Morgan Stanley. But it has lagged since 1983, and Sherva points to the group's extremely reasonable valuation, as reflected in the T. Rowe Price New Horizons Fund, a mutual fund that invests in such companies. The average price-earnings multiple of stocks in the fund is the same as the market's, but was more than twice as high in mid-1983, when high-tech fever drove many small growth stocks to levels never regained. Sherva thinks small stocks are due for a surge this year.

THE 100 BEST STOCKS

		STOCK PRICE 12/31		DIVIDENDS PER SHARE	TOTAL RETURN TO INVESTORS
		1985	1986		
26	**First Federal Bank FSB** (Nashua, N.H.)	$17.75	$41.50	$0.40	137%
27	**Roper** (Kankakee, Ill.)	$7.937	$18.375	$0.36	137%
28	**DST Systems** (Kansas City, Mo.)	$11.25	$26.00	$0.20	133%
29	**Gap** (San Bruno, Calif.)	$15.687	$35.75	$0.31	130%
30	**Westamerica Bancorp** (San Rafael, Calif.)	$22.00	$49.00	$0.70	128%
31	**Bayly** (Denver)	$6.00	$13.50	$0.12	127%
32	**Intermet** (Atlanta)	$5.416	$12.125	$0.16	127%
33	**American Barrick Resources** (Toronto)	$6.687	$15.125	$0.00	126%
34	**Ponderosa** (Dayton)	$13.00	$28.75	$0.40	126%
35	**Texas Air** (Houston)	$15.00	$33.75	$0.00	125%
36	**Presidential Life** (Nyack, N.Y.)	$12.50	$28.00	$0.06	125%
37	**Countrywide Credit** (Pasadena, Calif.)	$5.637	$12.375	$0.25	124%
38	**American Israeli Paper Mills** (Hadera, Israel)	$7.875	$17.125	$0.30	123%
39	**Riverside Group** (Jacksonville, Fla.)	$5.00	$11.125	$0.00	123%
40	**Duquesne Systems** (Pittsburgh)	$14.375	$31.75	$0.00	121%
41	**Ryan's Family Steak Houses** (Greenville, S.C.)	$9.722	$21.375	$0.00	120%
42	**Computer Factory** (New York City)	$7.968	$17.50	$0.00	120%
43	**For Better Living** (San Juan Capistrano, Calif.)	$5.125	$11.00	$0.10	118%
44	**Rollins Environmental Services** (Wilmington, Del.)	$11.916	$25.875	$0.06	118%
45	**View-Master Ideal Group** (Beaverton, Ore.)	$8.333	$18.00	$0.00	116%
46	**Puerto Rican Cement** (San Juan)	$8.125	$17.375	$0.10	115%
47	**Eastern Bancorp** (Burlington, Vt.)	$11.00	$23.50	$0.10	115%
48	**Micropolis** (Chatsworth, Calif.)	$8.75	$18.75	$0.00	114%
49	**Ero Industries** (Chicago)	$6.833	$14.625	$0.00	114%
50	**Laidlaw Industries** (Hinsdale, Ill.)	$7.75	$16.375	$0.12	114%

The big payoff *last year went to investors who had their money in hot little companies that predominate among the stock market's winners. High on the list are mundane outfits that collect garbage and make bedcovers.*



THE REST OF THE 100 BEST

NEW YORK STOCK EXCHANGE

AMERICAN STOCK EXCHANGE

OVER THE COUNTER

THE 100 BEST STOCKS

		STOCK PRICE 12/31		DIVIDENDS PER SHARE	TOTAL RETURN TO INVESTORS
		1985	1986		
51	**Masco Industries** (Taylor, Mich.)	$10.75	$22.75	$0.00	112%
52	**Re Capital** (Weehawken, N.J.)	$6.666	$14.00	$0.07	111%
53	**Americus Trust for Exxon** (New York City)	$7.00	$14.75	$0.00	111%
54	**Zondervan** (Grand Rapids, Mich.)	$13.125	$27.625	$0.00	110%
55	**Bush Industries** (Little Valley, N.Y.)	$8.125	$17.00	$0.00	109%
56	**Blockbuster Entertainment** (Dallas)	$5.625	$11.75	$0.00	109%
57	**Computrac** (Richardson, Tex.)	$7.25	$15.125	$0.00	109%
58	**Consumers Power** (Jackson, Mich.)	$7.50	$15.625	$0.00	108%
59	**Lotus Development** (Cambridge, Mass.)	$25.00	$51.75	$0.00	107%
60	**K-V Pharmaceutical** (St. Louis)	$5.833	$12.00	$0.00	106%
61	**Owens-Illinois** (Toledo)	$26.375	$53.00	$0.94	106%
62	**Capitol Transamerica** (Madison, Wis.)	$5.062	$10.125	$0.26	105%
63	**Washington Mutual Savings** (Seattle)	$11.416	$23.00	$0.33	105%
64	**Wayne-Gossard** (Chattanooga, Tenn.)	$11.875	$24.00	$0.20	104%
65	**Champion Products** (Rochester, N.Y.)	$19.25	$38.625	$0.54	104%
66	**FMC** (Chicago)	$65.50	$25.75	$80.55*	104%
67	**Public Service Co. of Indiana** (Plainfield)	$7.25	$14.75	$0.00	103%
68	**Q-Med** (Clark, N.J.)	$8.75	$17.75	$0.00	103%
69	**Home Owners Federal S&L** (Boston)	$10.444	$21.00	$0.00	101%
70	**Buckeye Financial** (Columbus, Ohio)	$6.714	$13.50	$0.00	101%
71	**Catalyst Energy Development** (New York City)	$12.125	$24.375	$0.00	101%
72	**Agency-Rent-A-Car** (Solon, Ohio)	$11.428	$22.75	$0.00	99%
73	**Tyson Foods** (Springdale, Ark.)	$13.75	$27.25	$0.04	98%
74	**Innovative Software** (Overland Park, Kan.)	$7.00	$13.875	$0.00	98%
75	**American Fructose** — Class B (Stamford, Conn.)	$6.375	$12.625	$0.00	98%
76	**Affiliated Publications** (Boston)	$35.833	$70.125	$0.44	97%
77	**American Fructose** — Class A (Stamford, Conn.)	$6.50	$12.75	$0.00	96%
78	**Korea Fund** (New York City)	$17.625	$34.00	$0.44	95%
79	**Fieldcrest Cannon** (Eden, N.C.)	$17.437	$33.50	$0.57	95%
80	**Alo-Scherer Healthcare** (Fort Lauderdale, Fla.)	$10.25	$20.00	$0.00	95%
81	**Lear Siegler** (Santa Monica, Calif.)	$48.50	$91.125	$2.00	94%
82	**Tultex** (Martinsville, Va.)	$9.50	$18.125	$0.28	94%
83	**ACI Holdings** (Newport Beach, Calif.)	$7.50	$14.50	$0.00	93%
84	**CVB Financial** (Chino, Calif.)	$10.399	$20.00	$0.00	92%
85	**Standard Products** (Cleveland)	$19.666	$37.00	$0.62	92%
86	**Bankeast** (Manchester, N.H.)	$9.375	$17.625	$0.30	92%
87	**Countrywide Mortgage Investments** (Pasadena, Calif.)	$10.375	$18.00	$1.65	92%
88	**Ranco** (Dublin, Ohio)	$21.00	$38.75	$0.84	91%
89	**Viatech** (Syosset, N.Y.)	$5.625	$10.75	$0.00	91%
90	**Midway Airlines** (Chicago)	$6.875	$13.125	$0.00	91%
91	**Society for Savings** (Hartford)	$11.988	$22.75	$0.00	90%
92	**Puritan-Bennett** (Overland Park, Kan.)	$15.687	$29.50	$0.20	90%
93	**Banker's Note** (Smyrna, Ga.)	$5.666	$10.75	$0.00	90%
94	**Dynascan** (Chicago)	$7.00	$13.25	$0.00	89%
95	**Dual-Lite** (Newtown, Conn.)	$7.125	$13.375	$0.08	89%
96	**Davis Water & Waste Industries** (Thomasville, Ga.)	$8.166	$15.25	$0.16	89%
97	**Heico** (Mendota, Ill.)	$15.875	$29.875	$0.05	88%
98	**J.B. Hunt Transportation Services** (Lowell, Ark.)	$13.75	$25.75	$0.12	88%
99	**Fedders USA** (Peapack, N.J.)	$5.125	$9.50	$0.13	88%
100	**Accuray** (Columbus, Ohio)	$24.50	$45.50	$0.28	88%

*Includes extraordinary onetime payout of cash, stock, or debt securities.

AND THE 50 WORST

THE 50 WORST STOCKS

		STOCK PRICE 12/31		DIVIDENDS PER SHARE	TOTAL RETURN TO INVESTORS
		1985	1986		
1	**Bioassay Systems** (Woburn, Mass.)	$6.375	$.125	$00.00	−98%
2	**Advanced Tobacco Products** (San Antonio)	$12.125	$.25	$00.00	−98%
3	**Wedtech** (Bronx, N.Y.)	$11.00	$.406	$00.00	−96%
4	**Integrity Financial Group** (Paramus, N.J.)	$5.375	$.25	$00.00	−95%
5	**Chargit** (New York City)	$8.00	$.406	$00.00	−95%
6	**Citisource** (New York City)	$6.875	$.50	$00.00	−93%
7	**Westworld Community Healthcare** (Lake Forest, Calif.)	$11.875	$.875	$00.40	−93%
8	**Savers Inc.** (Little Rock, Ark.)	$11.75	$.875	$00.00	−92%
9	**Spectran** (Sturbridge, Mass.)	$21.50	$2.125	$00.00	−90%
10	**Machine Vision International** (Ann Arbor, Mich.)	$5.00	$.50	$00.00	−90%
11	**Stereo Village** (Decatur, Ga.)	$8.875	$1.062	$00.00	−88%
12	**Birdfinder** (Sarasota, Fla.)	$5.00	$.625	$00.00	−88%
13	**McLean Industries** (New York City)	$9.625	$1.375	$00.00	−86%
14	**Alaska Mutual Bancorp** (Anchorage)	$14.875	$2.375	$00.00	−84%
15	**BancOklahoma** (Tulsa)	$17.00	$2.75	$00.10	−84%
16	**Pattern Processing** (Minneapolis)	$6.125	$1.125	$00.00	−82%
17	**Alaska National Bank of the North** (Fairbanks)	$13.50	$2.50	$00.00	−81%
18	**Haber** (Towaco, N.J.)	$16.75	$3.375	$00.00	−80%
19	**Telco Systems** (Menlo Park, Calif.)	$14.25	$3.00	$00.00	−79%
20	**Financial Security S&L** (Delray Beach, Calif.)	$5.875	$1.25	$00.00	−79%
21	**United Bancorp Alaska** (Anchorage)	$8.181	$1.75	$00.00	−79%
22	**Reid-Ashman** (Santa Clara, Calif.)	$5.25	$1.125	$00.00	−79%
23	**Tylan** (Carson, Calif.)	$11.25	$2.437	$00.00	−78%
24	**Texas International** (Oklahoma City)	$5.75	$1.25	$00.00	−78%
25	**Telecrafter** (Lakewood, Colo.)	$12.625	$2.75	$00.00	−78%
26	**Bolt Technology** (Norwalk, Conn.)	$5.625	$1.25	$00.00	−78%
27	**McFaddin Ventures** (Houston)	$6.75	$1.50	$00.00	−78%
28	**Brock Hotel** (Irving, Tex.)	$37.50	$8.375	$00.00	−78%
29	**ALC Communications** (Birmingham, Mich.)	$10.00	$2.375	$00.00	−76%
30	**LTV** (Dallas)	$6.75	$1.625	$00.00	−76%
31	**Gearhart Industries** (Fort Worth)	$7.625	$1.875	$00.00	−75%
32	**Electro-Catheter** (Rahway, N.J.)	$18.125	$4.50	$00.00	−75%
33	**Admac** (Kent, Wash.)	$11.50	$2.875	$00.00	−75%
34	**Radiation Technology** (Rockaway, N.J.)	$11.00	$2.75	$00.00	−75%
35	**Thermal Profiles** (Commack, N.Y.)	$6.375	$1.625	$00.00	−75%
36	**Sandy** (Troy, Mich.)	$14.625	$3.75	$00.00	−74%
37	**Cucos** (Metairie, La.)	$9.00	$2.312	$00.00	−74%
38	**Overland Express** (Indianapolis)	$10.625	$2.75	$00.00	−74%
39	**Trio-Tech International** (Burbank, Calif.)	$9.00	$2.375	$00.00	−74%
40	**Ross Stores** (Newark, Calif.)	$18.00	$4.75	$00.00	−74%
41	**First City Bancorp of Texas** (Houston)	$12.875	$3.375	$00.00	−74%
42	**ECI Telecom** (Tel Aviv)	$8.50	$2.25	$00.00	−74%
43	**GCA** (Bedford, Mass.)	$7.50	$2.00	$00.00	−73%
44	**United Financial Group** (Houston)	$6.50	$1.75	$00.00	−73%
45	**Air Midwest** (Wichita, Kan.)	$10.125	$2.75	$00.00	−73%
46	**Fuddruckers** (San Antonio)	$5.875	$1.625	$00.00	−72%
47	**Engineered Systems & Development** (San Jose, Calif.)	$14.25	$4.00	$00.00	−72%
48	**Daisy Systems** (Mountain View, Calif.)	$29.50	$8.375	$00.00	−72%
49	**Rada Electronic Ind.** (Herzliya-Pituach, Israel)	$8.75	$2.50	$00.00	−71%
50	**Techdyne** (Hialeah, Fla.)	$5.25	$1.50	$00.00	−71%

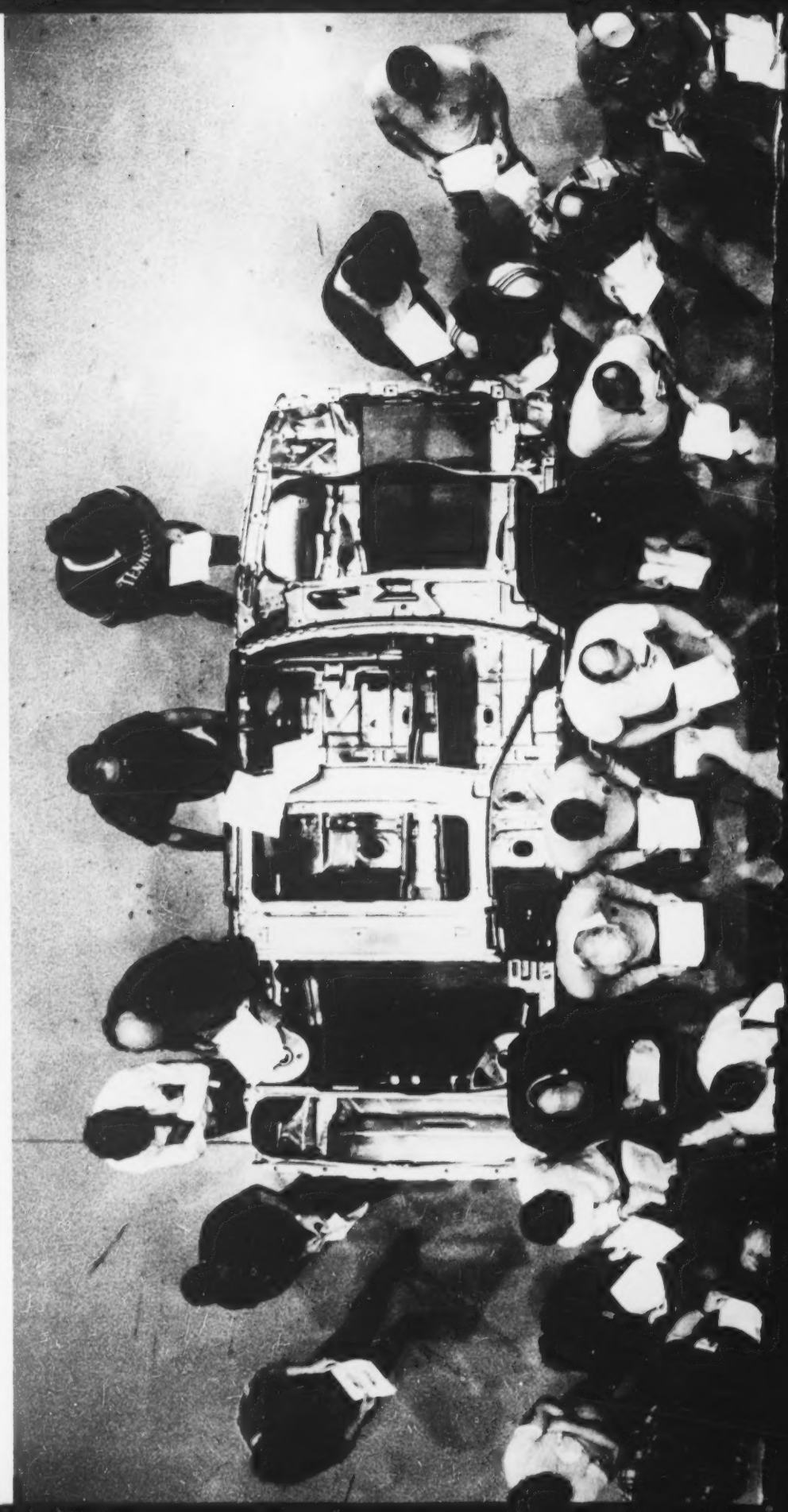
COMPETITION

DETROIT'S CARS REALLY ARE GETTING BETTER

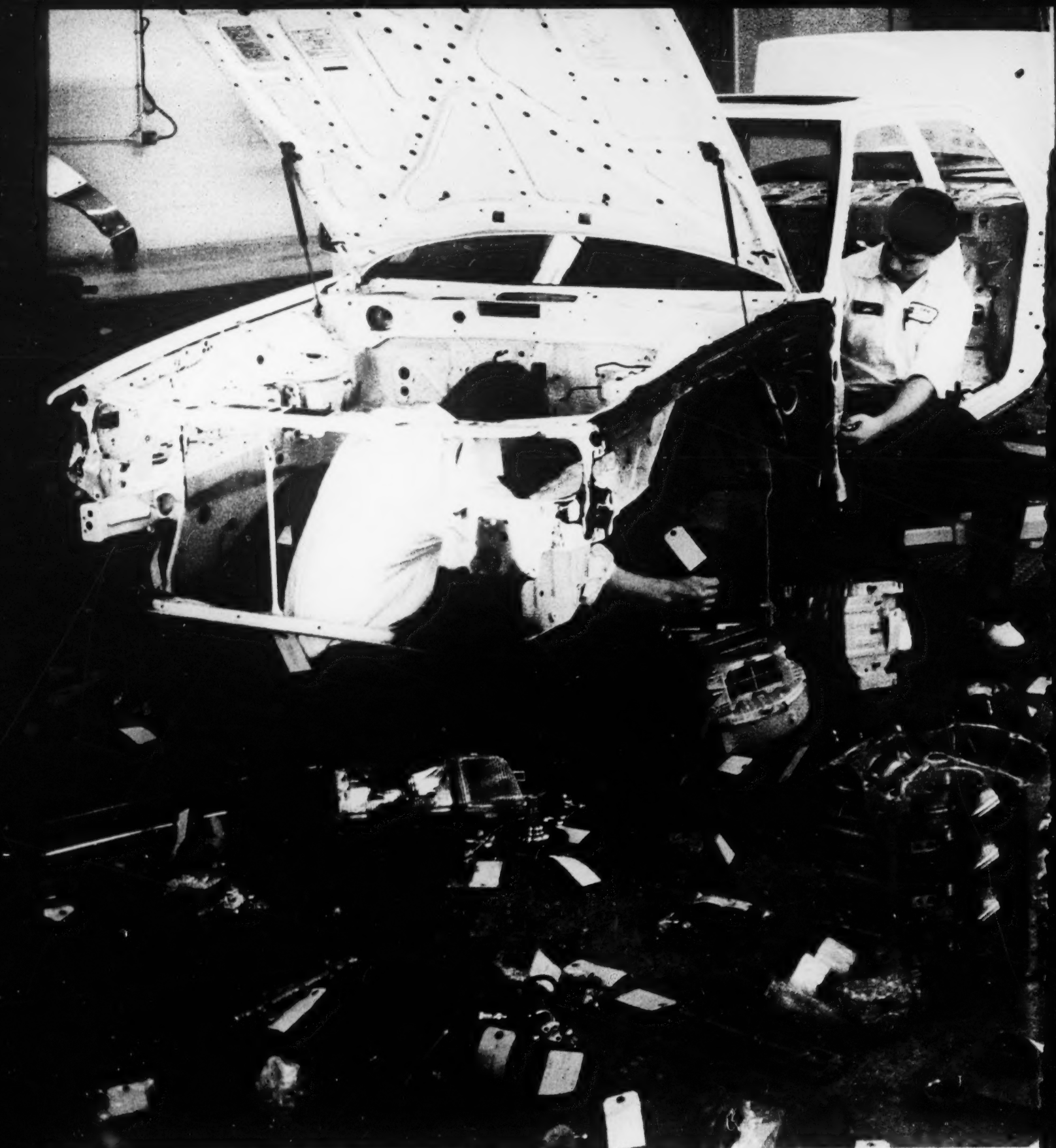
by Jeremy Main

WITH A LITTLE LUCK, you can buy a Ford today that has absolutely nothing wrong with it when you drive out of the dealer's lot. With a bit more luck, you can get a General Motors or Chrysler car that doesn't need anything fixed. Detroit still makes some lemons, and anyone who has bought one lately might be a tad skeptical about the news that U.S. automakers are getting quality under control. But the objective evidence gleaned from surveys of owners, records of problems reported, and internal audits—mostly proprietary information circulated only within the auto industry—shows much improvement. The Big Three are making better cars than they did in 1980. The surveys may differ in detail, but they see the same big picture: Ford leading a strong and general advance.

The tumultuous, expensive revolution in technology, management, labor relations, and corporate culture forced on Detroit by



A quality conference *is held daily as managers, supervisors, and hourly workers in Pontiac, Michigan, gather around the Pontiac Fiero car and chassis they make to see how they can improve them.*



Taking apart the competition *to see how others do it is one way of learning how to improve. Engineers at General Motors' Technical Center in Detroit*

PHOTOGRAPHS BY GERD LUDWIG–VISUM

dismantle a Honda Acura Legend, a new Japanese entry in the luxury field, down to the last screw.

the success of Japan is beginning to pay off. Some of the best-built American cars, such as the big Lincoln Town Car and the Mercury Grand Marquis, are within reach of world-class quality, as defined by Honda, Mercedes, and Toyota.

The first table on page 96 shows the progress of the Big Three, based on data developed by the Toledo office of Maritz Marketing Research Inc. Maritz recently took over the syndicated Rogers Survey, which produced a massive annual "blue book," the industry standard for rating and comparing the performance of the automakers. (FORTUNE obtained the data in Detroit; Maritz does not publish the results, prohibits clients from doing so, and would not confirm the accuracy of the data.) Like other surveys, Maritz measures the number of "things gone wrong" per 100 cars. The thing can be whatever causes a new owner to go back to complain to the dealer, whether it is a blemish in the paint or a thrown rod.

The Maritz survey of owners who had operated their 1985 cars for eight months shows that Ford was the best U.S. automaker in 1985, with 214 things gone wrong per 100 cars. In 1980 Ford was the worst after eight months, with an average of 392 problems per 100 cars. Ford's achievement is striking, especially since it pulled ahead of GM (256 things gone wrong) and Chrysler (285) while they too were improving. Japanese manufacturers averaged 132. What these figures mean, essentially, is that the owner of a 1985 Japanese car, on average, found 1.3 flaws in his car, the owner of a Ford two, the GM customer 2.5, and the buyer of a Chrysler nearly three.

OTHER OBJECTIVE ratings come up with similar results. Product & Consumer Evaluation Inc. of Farmington Hills, Michigan, which conducts the PACE survey (also syndicated confidentially to the automakers), found that Japan produced the best 1986 models, led by Toyota. Next were the European makers, topped by Mercedes. Ford, GM, and Chrysler followed. The *Power Report*, published annually by J.D. Power & Associates of Westlake Village, California, also found Ford the best of the American '86s in its latest report (issued in August), which rated foreign cars by companies and domestic cars by nameplates. Power's broad "consumer satisfaction index" gauges owner opinions of dealer service as well as the quality of the cars themselves. Honda, Mer-

REPORTER ASSOCIATE *Ann Goodman*

Disassembled cars *produced by other manufacturers fill a giant "tear down" room at the GM Tech Center. Each row of tables, from left to right, holds the*

parts of one car for the engineers' inspection, beginning with the chassis against the left wall.

cedes, Toyota, and Mazda won the top four spots in this Power ranking. Lincoln came in fifth, Mercury 12th, and Cadillac 14th in a field of 30.

Expert opinion backs the survey results. Says Robert E. Cole, a professor at the University of Michigan business school and an expert on automaking in Japan and the U.S.: "The best of ours are about as good as the worst of theirs, and that is a tremendous achievement. But there is still a significant gap." Keith E. Crain, publisher and editorial director of *Automotive News*, one of the major trade publications, believes, "There's no doubt that the American auto industry has dramatically improved quality." James E. Harbour, an auto industry consultant who has helped manufacturers with quality and productivity problems, even suggests that "quality may be becoming a nonissue."

TO SOME DEGREE quality is found in the eyes of the beholder. A middle-aged banker might want the durability of a Volvo, a young computer hotshot the sporty good looks of Pontiac's Fiero. The styling of Ford's bulbous Taurus may appeal to one driver, the engineering of a Mercedes to another. Some cars wear a halo, while others are garbed in sackcloth. The Mercedes owner whose car goes on the blink is likely to fly into a fury with his mechanic or dealer, or his wife's driving—anything but the revered car. On the other hand, no one expects perfection of a Yugo.

Still, every car has to meet certain basic requirements. The first is appearance. In the 1960s Germany alerted American consumers to the notion that flawless assembly was a truer form of beauty than slabs of carelessly applied chrome. The Japanese astutely adopted that philosophy in the 1970s, when the Big Three were turning out cars with molding that wobbled along the body and hunks of glue slopped in with the paint. The Japanese first established their reputation for quality with perfectly aligned molding, precise spaces around the doors, panels that lined up, bodies that didn't rattle—what automakers call good fits and finishes. Jim Harbour thinks that Detroit's fits and finishes are becoming competitive with those of the best imports. The research data seem to bear him out. An investigation for Ford by yet another survey outfit, Research Data Analysis of Bloomfield Hills, Michigan, shows that complaints about Ford's body work, while still the major source of trouble, dropped from 167 per 100 cars in 1982 to 111 in 1986.

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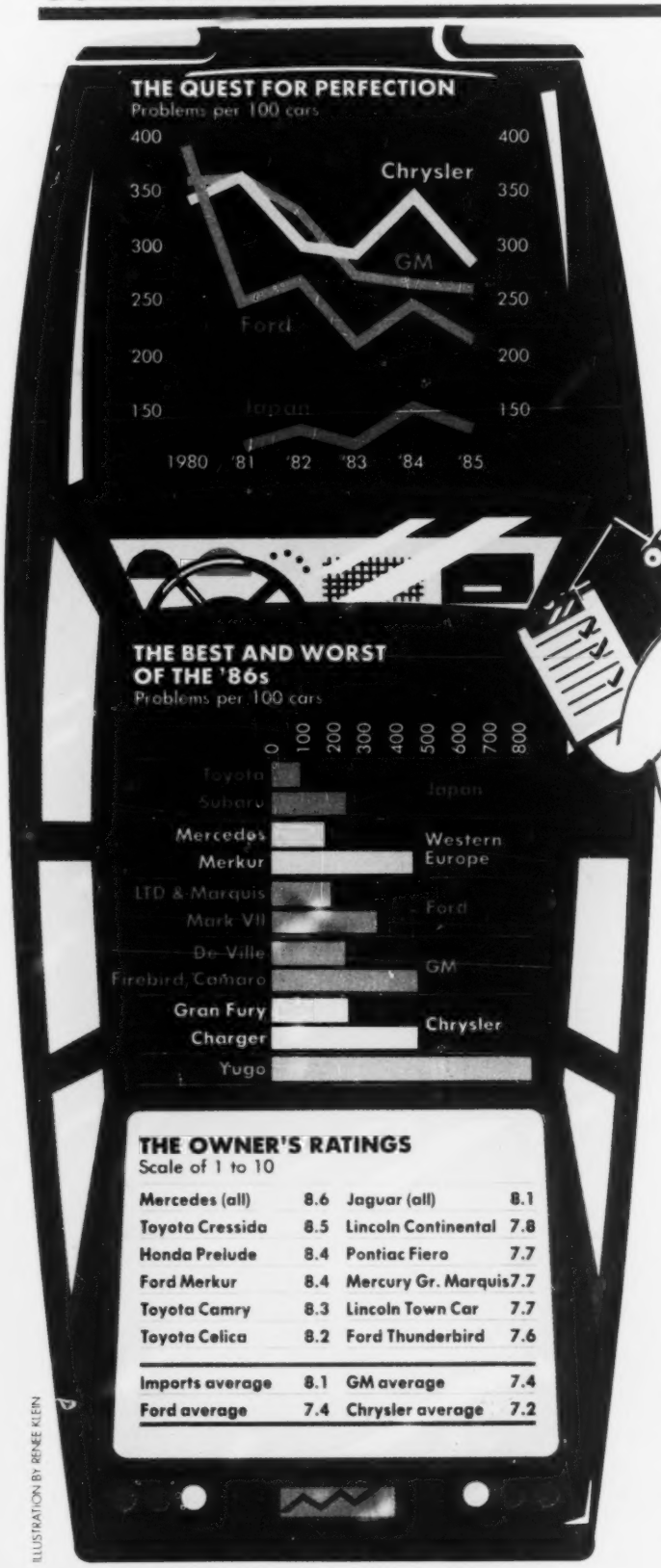

THE OWNER'S RATINGS
Scale of 1 to 10

Mercedes (all)	8.6	Jaguar (all)	8.1
Toyota Cressida	8.5	Lincoln Continental	7.8
Honda Prelude	8.4	Pontiac Fiero	7.7
Ford Merkur	8.4	Mercury Gr. Marquis	7.7
Toyota Camry	8.3	Lincoln Town Car	7.7
Toyota Celica	8.2	Ford Thunderbird	7.6
Imports average	8.1	GM average	7.4
Ford average	7.4	Chrysler average	7.2

ILLUSTRATION BY RENEE KLEIN

Rating the Makers

Judged by a standard industry measure, the number of "things gone wrong" reported in each model year, American cars are much improved since 1980 but still lag behind the Japanese imports. The trend lines are more important than setbacks in particular years.

Rating the Models

Americans still think Japanese and European cars—with the notable exception of Yugoslavia's Yugo—are of better quality than Big Three products, but as these ratings show, some U.S. nameplates are getting quite close. The middle table gives the cars with the most and least problems in each group; the bottom table lists the owner satisfaction scores for some top-ranked cars. Data in these tables come from confidential surveys made for the auto industry.

After fits and finishes, the owner cares most about "driveability," a term that describes how reliably and smoothly a car runs. An engine that balks on cold mornings or a congenital staller will send a driver right into the arms of Nippon. Here again the improvement seems clear. For example, complaints about Ford's engines dropped from 60 per 100 cars in 1982 to 24 in 1986.

CONSUMERS UNION, a nonprofit organization that rates products, treats reliability as the prime ingredient of auto quality. Its massive survey of subscribers focuses on frequency of repairs and is revealed in exhaustive detail in the annual auto issue of *Consumer Reports*. Last year, as in 1980, Japanese and some European cars were consistently better than average, while American cars were still mostly average or below. But Robert D. Knoll, head of Consumers Union's auto test division, says the average itself has moved up.

Warranty costs are among the best indicators of quality—but they are the hardest to dig out precisely because auto companies regard them as so revealing. Japanese cars cost their makers an average of $55 in warranty costs in the first year of operation, says one well-placed source in Detroit. First-year warranty costs for American cars run from about $100 to $400.

Manufacturers have two ways to achieve high quality. The old-fashioned way, which once made Cadillac a car of world repute and still produces finely crafted Mercedes, Jaguars, and Rolls-Royces, requires a lot of careful inspection, rework, and fiddling. It makes for very expensive cars. Jaguar produces two cars a year per employee, Mercedes six, according to Harbour.

The Japanese approach could not be more different. Learned from American prophets of quality who were long ignored in their own land, the method creates a production system so carefully honed that it produces very few mistakes and therefore requires few inspectors and little rework. It throws in the side benefit of being cost effective because not much has to be inspected, rejected, or fixed. The Japanese formula, as related in many a best-seller, requires an approach in some ways alien to Detroit—an openness toward workers, cooperation between design engineers and manufacturing engineers, the use of management tools such as just-in-time inventories, and constant attention to details.

One detail tells the story of quality improvement at Ford's Essex engine plant in

Windsor, Ontario, which produces the 3.8-liter V-6 engines used in the Cougar and Thunderbird. Supposedly identical parts used to vary so much that pistons, for example, had to be chosen individually to fit each engine block. When Essex opened in 1981, Ford made so many different-size pistons for a single type of engine that it had to classify them into 13 sizes, each separated by ten microns (one-thousandth of a millimeter). By 1986 Essex had reduced the classes of pistons to three by cutting the variances with improved casting and machining. This year Essex plans to make only one size piston; any piston will fit any engine block, as in Japan.

The Big Three have all embraced the Japanese approach and adopted the goal, unthinkable in Detroit a decade ago, of "zero defects." This upheaval has been painful, nowhere more so than at General Motors.

Being the biggest and richest of the Big Three, GM tried to meet the Japanese challenge by doing too much. GM spent $53 billion to upgrade its plants and build new ones. At the same time, it tried to remake the corporation's culture and structure, introduce fleets of entirely new models, equip its cars with elaborate electronic doodads, and meet emission and fuel consumption rules. "We had an unbelievable amount of stuff on our plate, and we thought we could handle it, but we ran into problems," says Carlisle R. Davis, director of quality for the Chevrolet-Pontiac-Canada Group.

THE ONCE REGAL Cadillac is a victim of GM's attempts to do everything at the same time. Remember the 8-6-4 engine introduced in 1980? The idea was to turn GM's big eight-cylinder engine into a fuel sipper. Depending on power requirements, a computer would tell the engine whether it needed to fire four, six, or eight cylinders. It didn't work, and vanished in 1984—but not before thousands of owners learned to hate it for its mechanical and electronic failures. GM's attempt to make a diesel engine out of a beefed-up gas engine did not work either. Owners were lucky if they got 30,000 miles out of it. More recently the 440-T4 transmissions installed in '84 and '85 Fleetwoods and De Villes and other GM cars have frequently needed repair or replacement.

GM's sporty little Fiero illustrates why Detroit can stumble even when it makes its best efforts to catch up. Conceived before the quality philosophy caught hold, the Fiero was originally designed as a cheap commuter car. The project was killed and revived twice before it came to life as a jazzy, midengine two-seater. Along the way it acquired the Chevette's leaden steering system, which had no power boost in the Fiero because of the great distance between the engine and the front wheels. The car's ridiculous 10.3-gallon gas tank, designed with frugal commuting in mind, was the smallest made in the U.S. When the four-cylinder engine proved too unexciting for a sports car, Pontiac added a six-cylinder engine, but the engine fits so tightly that it takes a skilled mechanic to change the spark plugs. Worst of all, in the early models coolant from the radiator up front got so chilled by the time it reached the hot engine farther back that cracks developed in the engine block. Pontiac tried to assuage its customers by replacing engines free long after warranties had expired. For the most part these design errors have been or are being corrected, so that Fiero is now, in Harbour's view, "a class vehicle."

> At GM, "we had an unbelievable amount of stuff on our plate, and we thought we could handle it, but we ran into problems."

At the Pontiac, Michigan, plant where the car is assembled, managers, supervisors, and some line workers attend daily quality briefings that attest to Pontiac's desire to produce a fine car. A giant bulletin board on the plant floor keeps track of Fiero's quality. When it was first produced in 1984, Fiero scored 74 out of a possible 100, based on owner satisfaction surveys in GM's CAMIP (Continuous Automotive Marketing Information Process), conducted by Research Data Analysis. The bulletin board's most recent quarterly data show Fiero scoring 91, vs. 99 for Toyota's MR2, 97 for Mazda's RX7, and 89 for Nissan's Pulsar NX. Inside GM, Fiero looks good, since the company average CAMIP score is 85.

GM has overcome many of the problems with Fiero and Cadillac, but the mistakes hurt, and have doubtless contributed to the company's loss of market share in recent years. Fiero sales slipped 21% from 1985 to 1986, according to sales figures compiled by *Automotive News*, and the plant dropped its second shift after shutting down production for two weeks at New Year's. Cadillac sales dropped 3.5% from 1985 to 1986. Replacing bad engines in Cadillacs and some other models has cost GM an estimated $90 million. To help the division become a leader again, GM has just reorganized the Buick-Olds-Cadillac group, giving Cadillac its own engineering, design, and manufacturing capacities.

HOW MUCH has GM learned? Chevrolet's snappy 1987 four-door Corsicas and two-door Berettas, conceived in the age of quality, will tell a lot. All the major groups involved in the two cars, from toolmaking to marketing, have worked together since the beginning three years ago to solve quality problems as they surfaced. A rattle in the dashboard, for instance, was recently discovered, traced to its source—too much slack cable—and eliminated on the production line within two weeks. In the old days GM would not even have heard of the problem for months and might not have corrected it until the next model run.

Being the worst of the three in 1980 in quality, Ford had an easier time improving—at least at first. Equally important, Ford has the advantage of being a highly centralized company; once top management decided to pursue quality, it pushed through new practices, such as setting tougher standards for suppliers, rapidly and unequivocally. At decentralized GM, the divisions tended to go off every which way, and directives from the top still get lost in the bureaucracy. Ford cars are not flawless, of course. *Consumer Reports* recently complained that the reliability of the Tempo and Topaz are "much worse than average." But the introduction of the Taurus and Sable at the end of 1985 (delayed to allow for some fixes) was a lot less troubled than the introduction of the Escort and Lynx in 1980. Still, the new models suffered recalls; for example, the sulfurous smell of rotten eggs in some of the first cars had to be eliminated by a new catalytic converter.

Adversity also favored Chrysler. Since it was fighting for its life in 1980, the company had to simplify and concentrate on producing its K-body cars (the Dodge Aries and Plymouth Reliant), which is not a bad recipe for improving quality. A 50,000-mile, five-year warranty added a powerful reason for promoting the virtue. George F. Butts, vice president of quality and productivity at Chrysler, says claims have turned out to be less than half what the company expected under the generous warranty plan. This year Chrysler will further simplify its work by farming out production of its big V-8 en-

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gine cars—the Fifth Avenue, the Gran Fury, and the Diplomat—to American Motors; Mitsubishi already builds the subcompact Plymouth Colt. With the first of the popular minivans, Chrysler scored its biggest success of the 1980s, and even competitors admit that the two entries, the Dodge Caravan and the Plymouth Voyager, are among the best-built vehicles in the U.S.

Up to this year, Chrysler's improvements had not saved it from placing third among the Big Three in the research of major independent organizations, so Chrysler commissioned its own survey last March from Creative Information Services of Rochester, Michigan. Miraculous to behold, Creative Information discovered that Chrysler was the best of the Big Three in "cars and trucks combined." Neither Chrysler nor the survey firm will disclose any details of the survey, except to say that it used the usual "things gone wrong" basis. But now Chrysler is getting some help from the preliminary Maritz study of 1986 models (the full 1986 blue book isn't out yet). It shows that the carmaker's quality took a big jump from 1985 to 1986, squeaking past GM but still substantially behind Ford. Since the 1986 Power survey also puts Chrysler ahead of GM, Chrysler seems to be climbing out of the cellar.

FOREIGN CARS haven't been immune to the quality problems the Big Three are struggling to solve. Indeed, the new Yugo, a Fiat resurrected by a Yugoslav automaker, had the distinction of being outstandingly the worst car in the PACE survey, with a score of 838 things gone wrong per 100 cars—worse than Detroit even at its nadir. Yugo claims to have corrected many of the problems.

A mysterious malady called "sudden acceleration" has afflicted both U.S. and foreign cars. Cars with automatic transmissions suddenly take off for no apparent reason. The Big Three, American Motors, Nissan, Toyota, and even Audi and Mercedes have been scarred by sudden acceleration. Last August the National Highway Traffic Safety Administration dropped an investigation into sudden acceleration that covered 60 million GM cars made between 1973 and 1986. The agency said it could not order a recall because it could not cite a specific defect that needed correcting. However, the agency has since reopened its investigation of the 1982 to 1985 J cars, such as the Chevrolet Cavalier and Buick Skylark, because of new complaints. The Audi 5000, an otherwise excellent $20,000-and-up vehicle, has been especially hurt by the syndrome. Recently NHTSA asked the company to voluntarily recall more than 230,000 of the cars. The cause could be, as Audi has suggested, that drivers are mashing down on the accelerator when they think they are hitting the brake, or it could be a mechanical problem or a series of them. No one has yet offered a definitive answer.

It may well be, as Harbour and others assert, that Detroit's efforts have eliminated quality as a reason for choosing a foreign car over an American car. Ray Windecker, a longtime market analyst who works for Ford, argues his research shows that "new Japanese cars average just under two negative comments each and Ford cars just under three, and many of those are about irritants, not mechanical failure. If a buyer elects to pay several hundred dollars more for a Japanese car in the belief that he is getting a truly better car, he is kidding himself." But even if the difference is that small, it will take a long time for the reputation of American cars to catch up with their performance.

And Harbour sees a new danger for Detroit. While the U.S. automakers are catching up, the Japanese, having decided to go for the upper end of the market, are reaching for new levels of quality with advanced technology. Most Japanese cars sold in the U.S. are, or soon will be, equipped with highly sophisticated engines that produce better performance and mileage. Many, for example, now boast four valves per cylinder instead of the usual two, a costly refinement that yields more efficient combustion. The Japanese are also leading in the development of silky-smooth electronic transmissions and in speed-sensitive power steering, which gives the driver more feel of the road at higher speeds. Mercedes's widely advertised drive to pamper its owners with solicitous road service takes quality improvement in yet another direction.

U.S. automakers are also advancing technologically. Today's engines are packed with devices unimagined a few years ago. Electronic engine controls, for example, can diagnose problems automatically, devise solutions, and store them in their memories. Oldsmobile will get the first American production-type four-valve-per-cylinder engine early in the 1988 model run. Ford has started to put antilock brakes in some of its cars and pickup trucks—an excellent innovation for safer stops. But Japan and Germany are still out in front in solid engineering improvements. Detroit isn't finished playing catch-up yet. ■